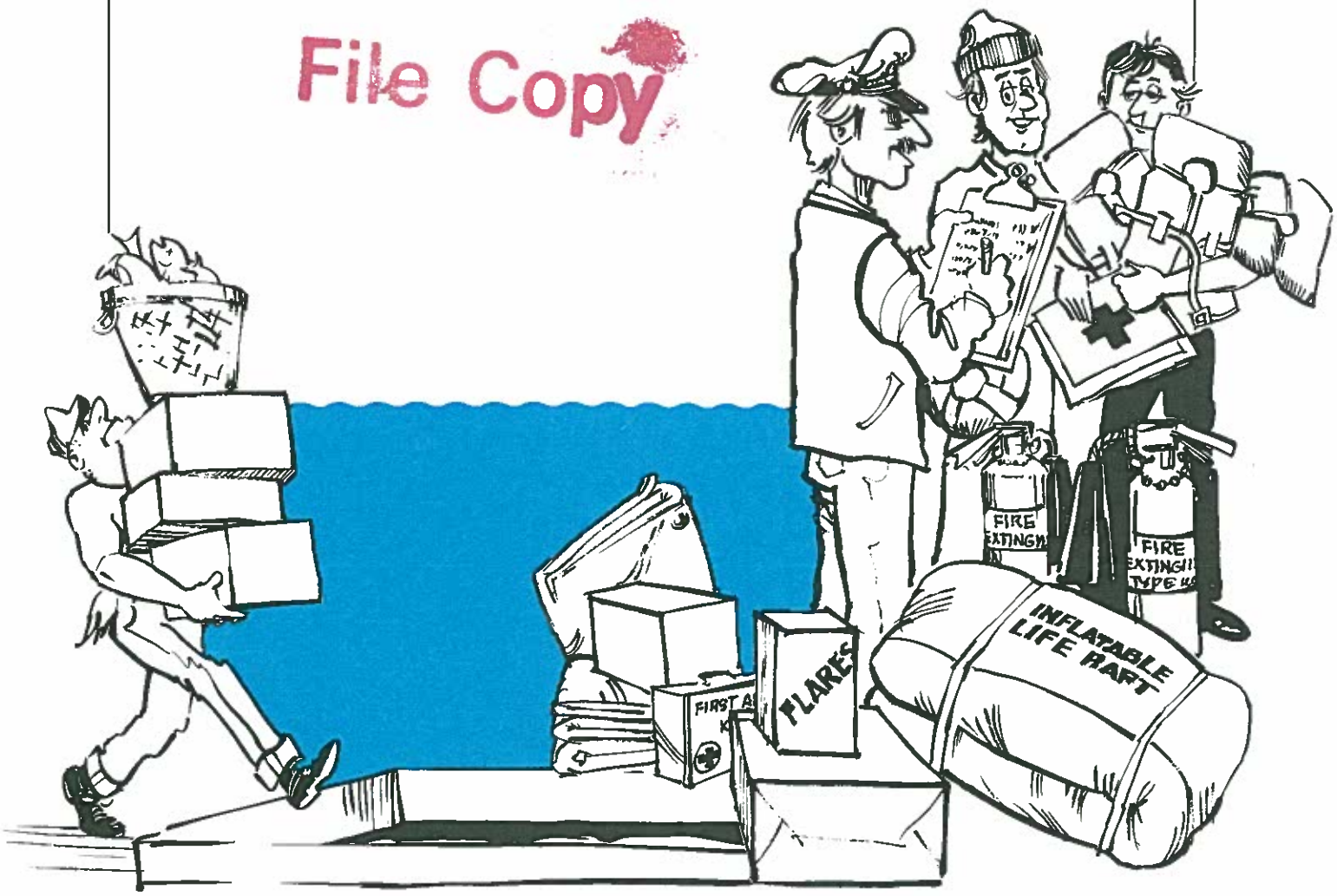
SAFETY AT SEA

A guide for

Fishing Vessel Owners and Operators



Sea Grant College Program • Texas A&M University

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SAFETY AT SEA

A guide for
Fishing Vessel Owners and Operators

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Save lives, save losses

As the number of fishing vessels in the Gulf of Mexico increases (the number of documented vessels increased by about 50 percent in the last 13 years), and a significant number of vessel accidents and casualties continues to occur, it is imperative that each vessel in the Gulf of Mexico implement a sound safety program. Currently the Gulf of Mexico is home to about one-fourth of all fishing vessels of 5 net tons or more in the U.S. fishing fleet.

Between 1972 and 1977, 294 vessels and 59 human lives were lost in the Gulf of Mexico; losses of 108 fishing vessels and 13 lives were recorded off Texas alone. Many of these losses might have been avoided if safety programs had been established by vessel owners and operators, and followed by captains and crews.

This safety guide is designed to provide fishing vessel owners and operators with guidelines to improve their individual safety programs. It includes information about the prevention of accidents, safety inspections, safety rules for crew members, accident procedures, and safety training. It offers sample forms to be used in collecting safety-related data and includes a section on how to survive at sea after abandoning ship.

Because of the diversity of fishing operations within the industry, it is recognized that no ready-made safety package can fill the needs of all operators. While these guidelines form a sound basis for organizing an effective safety program, other programs may meet fishing industry and individual needs just as effectively and the suggestions and goals listed here can be used as a supplement to other procedures and safety programs in the marine work environment.

While this publication provides basic guidelines from which an individual program suitable for a particular fishing operation can be designed, individual programs should be coordinated with applicable federal, state and local safety requirements. Before adopting any of the sample forms in this guide, vessel owners and operators should consult a legal advisor about legal aspects associated with the use of such forms.

If one boat or life is saved because of the information in this guide, the effort to compile and publish it will be worthwhile.

Safety: a common problem

The U.S. Coast Guard published the following fishing vessel casualty statistics for Gulf of Mexico operations during 1972-77:

OPERATIONAL COLLISIONS — 416 collisions occurred in the Gulf; 60 percent occurred during daylight hours under clear, calm conditions. Texas recorded 149 collisions with 25 total losses. Another 75 collisions occurred in the mid-Gulf. The highest number of incidents occurred during June, July and August, with the largest primary causes being personnel fault (48 percent) and rules-of-the road violations (45 percent). Total losses were due mainly to collision with a submerged object.

GROUNDINGS — 271 groundings in the Gulf included 82 for Texas-based vessels with 32 total losses and one fatality. Most groundings (58 percent occurred in calm seas during clear to partly cloudy weather. The largest single cause was personnel fault (62 percent) followed by navigational error (44 percent).

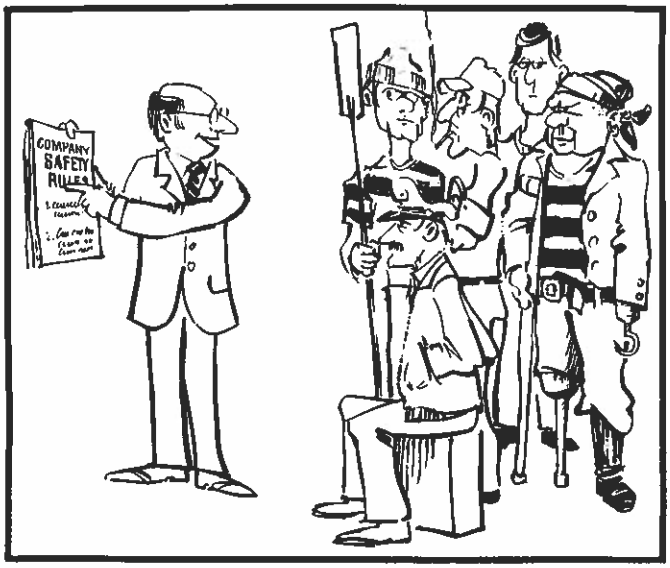
EXPLOSIONS AND FIRES — 91 occurred in the Gulf. Of the 24 explosions and fires involving Texas vessels, 16 resulted in total losses. The largest single cause listed was equipment failure (39 percent), followed by electrical equipment malfunctions (38 percent).

FLOODING, FLOUNDERING AND CAPSIZING — 194 occurrences in the Gulf included 40 such accidents in Texas, resulting in 16 losses and 11 fatalities — the highest number of vessels and lives lost. The largest single cause was listed as "unknown" (24 percent), followed by personnel fault (18 percent) and weather and equipment failure (15 percent for each).

MATERIAL FAILURE — 175 reportings in the Gulf included 42 in Texas, resulting in 19 total losses and one fatality. The largest single cause was failure of on-board equipment (75 percent). Structural failure accounted for 75 percent of the total losses and 70 percent of the deaths; however, this category contained only 19 percent of the total incidents.

Overall, shrimping vessels recorded the highest number of total losses with flooding, foundering and capsizing, and structural failure being the most common causes of loss. Shrimp boats accumulated the greatest number of fatalities.

Part 1: Toward a safer vessel



Why have a company safety policy?

A policy statement from the owner or manager of a fishing vessel operation establishes authority, responsibility, accountability and endorsement of the company's safety program. The company policy should be publicized and promoted to crewmen to both reduce human suffering resulting from accidents and lower insurance costs and indirect costs of accidents.

A safety policy is important because:

A safety policy makes it easier to enforce safe practices and conditions aboard vessels.

It makes it easier for supervisors to implement company policy.

It makes it easier for crewmen to follow safety rules and instructions.

It makes it easier to justify preventive maintenance for equipment and to select proper equipment at the time of purchase.

A company safety policy declaration should include these ideas:

The safety of crewmen, the public and of company operations are most important.

Safety takes precedence over expediency or shortcuts.

Wherever possible, attempts will be made to reduce the chance of an accident.

The company will comply with all governmental safety rules and regulations.

Cooperation and active support for the safety program will be expected from each crewman.

How to identify and hire safe personnel

It is extremely difficult to identify an accident-prone job applicant, but every effort should be made to hire individuals suitable for maritime employment, who are mentally and physically capable of performing their duties without jeopardizing their personal safety or the safety of fellow crew members and the vessel on which they are employed. An effective safety program starts with a careful review of each application for employment. Elimination of those applicants who appear to be physically or mentally unsuitable for the job, or whose records indicate a history of accidents can reduce the potential for accidents.

The following procedures are recommended for evaluating job applicants:

Use a "new crewman checklist" as part of the hiring process; keep it with the crewman's personnel file. Include in it all information gathered from the following procedures.

1. Have all applicants complete a standard application-for-employment form, designed specifically for your company.

2. Carefully review the application form and conduct a personal interview to appraise the applicant's suitability for employment. This will help determine mental ability, past job experience and appropriate physical condition to perform the job.

3. Check all injury records and past performance records on the application. Accident repeaters can be eliminated by checking past performance records, which are maintained by industry trade associations.

4. Contact the applicant's employers of the previous 5 years by telephone or letter to find out about the applicant's work habits, type of work, job skills, injuries, claims, settlements and reasons for leaving.

5. Require applicants to take a physical exam performed by a doctor familiar with requirements for fishing vessel operations. A medical authorization form (see Sample Form H) may be useful in gaining background medical information.

6. Assign the new crewman to a vessel according to his experience. The less experienced crewman should be assigned to a vessel whose captain is qualified to supervise and train the new crewman.

7. After a suitable period of time, have the crewman's supervisor evaluate him for his attitude and capability, compatibilty with crew members, work habits, safety consciousness, and safety awareness and practices.

Safety training and orientation

Fishing operations often have difficulty offering safety orientation and training. New personnel are hired and assigned to a vessel with very little information about the operator, the crewman's duties, safety procedures or benefits. A common practice in the fishing industry has been to ignore any orientation or training and simply tell a new crewman to board a fishing vessel at a designated point. No concerted effort has been made industry-wide to establish procedures for orientation and assignment of new personnel.

But new crewmen should be given a thorough orientation — particularly in the areas of safety and specific duties and responsibilities.

Topics to be covered in an orientation include:

- Where and how to join the vessel.
- How long the fishing trip will last.
- Sleeping and eating arrangements.
- Type of clothing and shoes to wear.
- Additional equipment required.
- How to get along with the other crew members.
- Safety precautions to follow.
- Recognition of possible safety hazards aboard the vessel.
- Emergency procedures and basic first aid.
- Emergency communication.

The safety orientation should begin with a tour of the vessel and an explanation about the use of safety equipment aboard. Include a demonstration whenever possible. Point out to the new crewman the more common safety hazards aboard the vessel; recognition of these may help him avoid an accident. All crew members should be aware of basic emergency procedures and first aid in case something happens to the captain and other crew members. Familiarize each new crewman with emergency communication procedures and communication equipment.

The new crewman should read all rules and regulations that are important to his safety while he is aboard the vessel and should sign a statement saying that he has read and understands these rules and regulations. Date the statement and keep it on file.

To be sure crewmen follow the guidelines of the safety program, the owner/operator needs to establish these basic procedures:

- Plan all work to minimize the possibility of personal injury, property damage and loss of productive time.
- Maintain a system for prompt detection and correction of faulty equipment and unsafe procedures and practices.
- Enforce the use of personal protective equipment, safety equipment and mechanical guards.
- Establish an effective program of vessel and equipment inspection and maintenance.
- Establish an educational program to promote cooperation and interest by investigating all accidents to determine cause and then taking corrective action; posting and enforcing minimum safety requirements; and promoting the safety program through safety meetings, safety incentive programs and other safety materials.
- Each new crewman should be given a set of general safety rules and any other safety materials when he is hired. Duties and responsibilities of the captain and crew members should be outlined in clear, easy-to-understand terms with the captain having major responsibilities to enforce the company safety program and safety rules while the vessel is at sea.

Making the work environment safe

The duty of every vessl owner is to furnish a seaworthy vessel for his crew, keeping the work environment as free as possible from recognized and avoidable hazards that could cause physical harm. Many accidents can be avoided by close observation of work practices, by attention to design and details of the equipment, by safety education and by promotion of safety awareness among crew members both for their own safety and the safety of others aboard.

Accident prevention efforts should include:

FREQUENT AND REGULAR INSPECTION OF MARINE EQUIPMENT WITH CORRECTIVE MEASURES FOR UNSATISFACTORY EQUIPMENT.

Persons responsible for vessel safety inspections should look for hazardous conditions that already exist as well as conditions that are potentially hazardous. (See the checklists' section in this manual for examples of safety inspection forms.) Common sense, job knowledge and awareness are most important in making these inspections. Potential hazards can be identified only by an inspector who is aware and knowledgeable about the type of vessel being inspected and the operation of the equipment on that vessel. The vessel's crew represents another good source of information on the safety hazards that exist or may develop on board. Existing or potentially unsafe conditions, particularly those conditions identified by the crew, should always be corrected at the earliest opportunity.

A SAFETY EDUCATION PROGRAM DIRECTED TO VESSEL PERSONNEL POINTING OUT THE MUTUAL SAFETY BENEFITS FOR CREW AND OWNER.

A sincere interest in the welfare of the crew by the vessel owner or operator is of major importance in gaining support for a safety education program. Safety posters pointing out potential hazards aboard ship or listing safety rules or tips can be placed in prominent locations.

SOME FORM OF SAFETY INCENTIVE PROGRAM WITH BONUSES, PRIZES OR AWARDS GIVEN TO VESSEL CAPTAINS AND CREW MEMBERS WHO HAVE NOT HAD A "LOST TIME" ACCIDENT.

These incentive programs should be well publicized to crew members.

SAFETY TRAINING, CONDUCTED ON A REGULAR BASIS, SHOULD INCLUDE EMERGENCY DRILLS, SAFETY MEETINGS AND SAFETY EQUIPMENT DEMONSTRATIONS.

All crew members should participate in all drills, meetings and vessel inspections. Knowing how to handle emergency situations can often be the difference between losing and saving a life. A printed list of emergency procedures should be prominently displayed on the vessel, and each crew member should be made aware of these procedures. Specific emergency procedures should be developed for fires aboard the vessel, abandoning ship, man-overboard, use of emergency lighting and power, adverse weather conditions, rules-of-the-road, galley safety and general first aid and medical treatment. (See the SURVIVAL AT SEA section of this manual for more detailed suggestions on emergency procedures.)

SAFETY RECOMMENDATIONS SHOULD BE MADE PERIODICALLY.

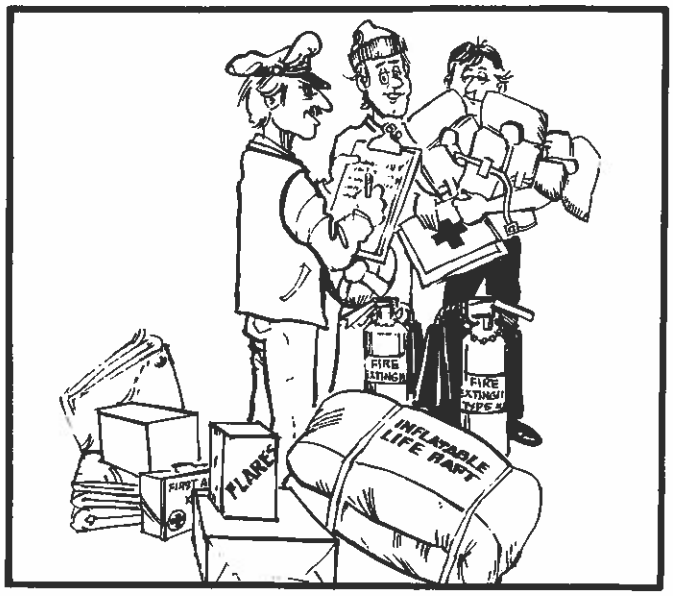
Recommendations are developed by vessel inspectors, marine surveyors, insurance claims people and others checking the vessel for safety equipment and general condition. These recommendations often include more details than required, though frequently they present just enough information to prevent an accident or serious injury.

How safe is your equipment?

Recommendations for Gulf of Mexico shrimping vessels

- Carry on board a minimum of one 30-inch diameter U.S. Coast Guard approved life-ring buoy with 75 feet of three-eighths-inch diameter line attached.
- Carry on board one U.S. Coast Guard approved life-raft float certified to accommodate all persons on board.
- Install one, two or three portable fire extinguishers, each with a minimum U.S. classification of 16-B:C in engine room entrance, galley-mess area, pilot house, or crew berth area.

- Carry on board six day-night type U.S. Coast Guard approved distress flares.
- Install locking devices on packing gland nuts to prevent possible loosening.
- Install a marine radiotelephone near the helmsman position.
- Carry on board one extra anchor and anchor rope of suitable shape and size to properly anchor vessel. Secure bitter end to vessel.
- Install flex line between fuel feed line and fuel supply at engine.
- Install shutoff valve at galley range.
- Renew butane feed line from supply tanks to galley range.
- Keep watertight doors closed and secured while not in use.
- Install an audio bilge alarm system to indicate excessive amount of bilge water.
- Secure batteries in acid resistant container.
- Secure wiring with fireproof clips.
- Protect all electric circuits with breaker switches or fuses.
- Periodically have qualified serviceman check fire extinguishers.
- Exercise care in preparing surfaces for painting.
- Upgrade protective coatings.
- Install guards on exposed machinery.
- Maintain navigation lights in accordance with U.S. Coast Guard regulations.
- Carry a minimum of three crewmen including captain.
- Carry on board, in addition to the two engine-driven bilge pumps, one portable pump with a minimum 2-inch diameter. Locate in protective container, preferably on top of deck house and secure. Pump should have 20 feet of 2-inch suction hose with strainer attached and 10 feet of 2-inch discharge hose.
- Have engine room visually checked by responsible crew personnel every 4 hours while at sea.
- Install bilge piping system independent of seacock suction.
- Have shutoff valve for sea water suction fitted at through-hull fitting and connected to independent bilge pump with discharge outlet at least 2 inches above vessel's loaded water line.
- Have all crew personnel wear U.S. Coast Guard approved work vests while on weather deck.
- Carry bulkhead-mounted, battery-powered emergency lights on board. Locate one in deck house and one in engine room.
- Clean bilges of oil deposits.

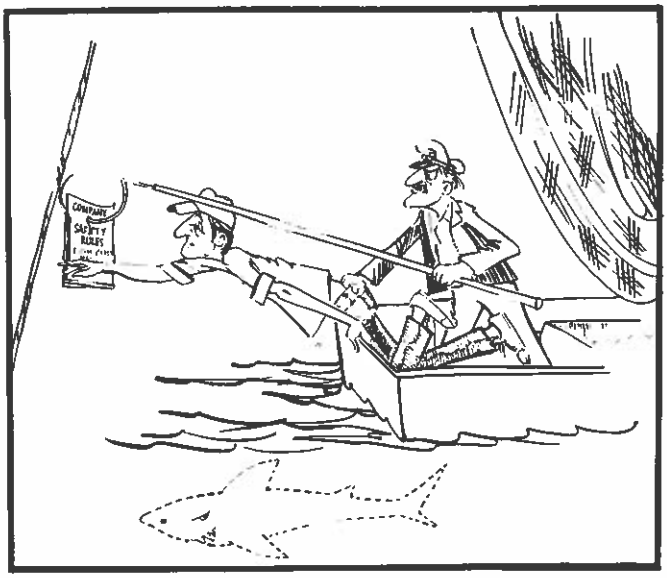


- Clean propulsion engine of oil deposits.
- Insulate exhaust pipe at bulkhead.
- Construct tail shaft of bronze or stainless steel in lieu of coldroll steel.
- Install anchor line hawse pipe on foredeck. Store anchor rope below deck.
- Disconnect master switch on electric circuit while vessel is unattended.
- Keep all weather deck hatches, doors and port lights secured while at sea.
- Carry on board one U.S. Coast Guard approved life preserver for each person on board.
- Install deck-mounted cable guides near winches in order to properly guide cable on winch drums.
- Install guardrails all about the deck winch to prevent possible personal injuries to the operator.

Fishing the safe way

General safety rules for the fishing industry are difficult to present in a form that will capture the attention of the crew and inspire compliance. Printed and posted safety rules, tips or guidelines are as much a part of a safety program as accident reporting or a safety policy.

The safety tips presented here were compiled in cooperation with the Texas fishing industry, the U.S. Coast Guard, the Marine Advisory Service at Texas A&M University, the Texas Shrimp Association and other fishing industry groups.



Safety tips for crew members

- No alcoholic beverages or drugs. If you are taking prescribed medication, inform the captain and show him the prescription.
- Never smoke in your bunk, in any confined area or while fueling at oil docks.
- Take your time as you move about the vessel. Always use handrails.
- Never run up or down steps and never run on deck. Avoid "horseplay", wrestling, running or jumping aboard the vessel.
- Always wear life vests or life jackets during rough seas.
- Learn how to lift, load and unload cargo. Bend your knees, not your back.
- Never stand under stressed rigging. Do not walk on or straddle rope. Never stand in the loop of a line.
- When tying up, always place your hands over the line but never beneath the line. Keep fingers from in-between lines and solid objects. Make certain adequate slack is present in anchor line before making wrap on anchor cleat.
- Always face the ladder when climbing up or down. Keep stairs and ladders clear of tripping hazards.
- Know the location of all fire extinguishers and how to operate them. Advise operator when extinguishers have been used or discharged.
- Never walk barefoot aboard the vessel; always wear appropriate boots or deck shoes.
- Become familiar with emergency procedures and all alarms and whistles.
- Do not lean over edge of vessel to grab a line. Use a boat hook.
- Beware at all times of slick decks, open hatches, loose or swinging rigging, and loose lines or gear on deck.
- Keep all watertight doors and hatches closed when underway and in open waters. Replace and re-secure all manhole covers, hatch covers and deck plates prior to getting underway.
- Do not obstruct passageways with gear or cargo.
- Learn the location of the vessel's first-aid kit and use it when needed. Report all injuries, scratches, cuts, burns, sprains, etc., to the captain at once, no matter how minor.
- Do not remove guardrails or other safety guards from around winch, power take-off and chain or belt-driven equipment.
- Do not jump from vessel to dock before vessel has come to a complete stop. Use rubber tire as a step.
- Use hand tools properly. Keep tools clean. Check their condition before use and do not carry sharp tools in pockets. Use the right tool for the job. Ground all portable electric tools.
- Do not discharge oil or oily waste into water. Violators are subject to stiff penalties.
- When repairing, checking, oiling, cleaning or adjusting equipment, be sure equipment is turned off and that the switch will not be turned on by other crew members.
- Avoid loose clothing and loose fitting rain gear near winches and chain, belt- or gear-driven equipment.
- In the galley be a good housekeeper. Be careful with knives, keep pot handles turned away from front of stove, keep cabinet doors and drawers closed, and clean up all spills immediately.

Sample safety policy statement

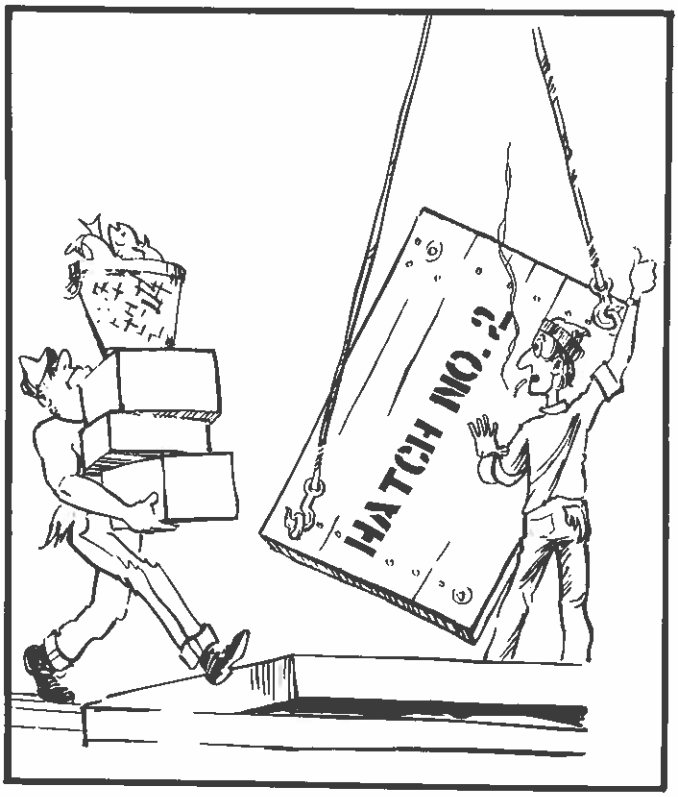
We believe the health and safety of crewmen should receive first consideration in our activities. The protection of our most important asset, our people, is of major concern to us all. At production facilities and aboard our vessels the personal safety of our crewmen takes precedence over operating productivity, whenever necessary.

It is our desire to eliminate accidents that can result in painful loss or suffering to crewmen or damage to company property. The "cost" of any accident is always too high because it can mean possible loss of earnings and discomfort to crewmen. It can have an unfavorable impact on company profits, which in turn can also adversely affect crewmen's jobs.

Our goal regarding safety first can take place only if the frequency of accidents is kept to a minimum. Each supervisor is charged with seeing that operations under his supervision are performed safely and efficiently. A high degree of safety consciousness among crewmen and wholehearted cooperation with safety procedures, regulations, and standards are necessary for the common good of all concerned.

President's signature

- Wear safety glasses when performing chipping, grinding or other work which produces flying particles.
- When pulling in the net, look out for catfish, hardheads, stingrays, sharks, jellyfish and other marine organisms that may cause injury. Report any injuries at once for proper medical attention.
- When fishing at night be sure to have proper light array and be cautious of platforms and other fishing vessels in the area. Use radar if it is available and have the wheel manned at all times.
- Do not use hands or feet directly on towing wire to guide cable on winch drums.
- On vessels with sliding pelican hooks, take care not to be underneath when lowering.
- Wear safety hard hats when working around or under the power block.
- Do not swim off the boat.
- If defective or damaged equipment is noted, or if any hazardous or dangerous condition is discovered, notify the captain immediately. Keep safety in mind at all times. Know the proper way to perform your job.



- Always keep holds clear of trash and greasy rags, and wipe up all oil or fuel spills.
- Do not go into the fish or shrimp hold until proper ventilation is assured and no dangerous or poisonous gases are present. Do not go into the hold without notifying a fellow crew member. Follow manufacturer's recommendations on use of shrimp dip or other chemicals. Do not stand on bitts or elevated air passages to throw a line on or off a cleat, dolphin, bitt or piling.

Checklists to spot potential hazards

A good vessel safety-inspection form provides an effective method of checking for hazardous and potentially hazardous conditions on a fishing vessel. Blank copies should be provided to personnel, whose responsibilities include safety, to help them carry out periodic inspections. Each form should be signed, dated and submitted to the vessel owner. Common sense, job knowledge and awareness are important tools in these inspections, made by either vessel- or shore-based personnel.

Each checklist is designed primarily as a guide for conducting a thorough inspection. Existing hazardous conditions can be determined easily by checking items on the list, but the less apparent, potentially hazardous conditions will probably require the trained eye of an inspector who is familiar with and knowledgeable about the type of vessel and the nature of its operations.

Several examples of checklists are provided in this section, but the best checklist is the one you design specifically for your vessel. There are six basic areas to check on any vessel — safety equipment and alarms, deck, engine room, living quarters, galley and wheelhouse. Inspect each of these areas BEFORE designing a vessel safety inspection form for your boat.

Sample Form A is a vessel inspection report form which can be used for almost any type of boat. It is very general, but it covers most items to be checked.

Sample Form B is a vessel inspection safety checklist for a large fishing vessel. It is fairly specific as to the items and areas to be checked.

Sample Form C is a vessel inspection form to be completed by the captain. Although it is very general in some areas, the form is specific in those areas with which the vessel captain should be most familiar.

Sample Form D and E are safety equipment checklists to be used for an overall inspection of any type vessel. These lists help the inspector determine which vital items are not aboard the vessel.

Sample Form F is a checklist similar to one used by the Massachusetts Inshore Draggermen's Association (MIDA) to qualify for special insurance discounts. At the request of the owner, members of the MIDA Safety Committee inspect each vessel to qualify the vessel for an insurance renewal discount or dividend. The list is reasonably easy to use and covers most of the safety equipment found on fishing vessels.

Sample Form G is a motor vehicle inspection form to check automobiles or trucks which transport crews or equipment while in port.

Sample Form H is an example of a pre-employment medical report suggested previously in the section on how to identify and hire safe personnel.

Sample Form A

Vessel _____

VESSEL INSPECTION REPORT

1. VESSEL IN GENERAL

	GOOD	FAIR	POOR
a. Hull			
b. Docks			
c. Bulwarks			
d. Ladders and stairways			
e. Handrails			
f. Watertight doors			
g. Vents, plugs, covers			
h. Storage of flammables			
i. Other			

2. ENGINE ROOM

	GOOD	FAIR	POOR
a. Guards (pulleys, v-belt, etc.)			
b. Relief valves (tanks, hot water heater, etc.)			
c. Deck plates			
d. Insulation			
e. Bilges			
f. Leaks (fuel, oil, etc.)			
g. Other			

3. ELECTRICAL/LIGHTING

	GOOD	FAIR	POOR
a. Lighting			
b. Protective globes/ cages			
c. Small appliances/ tools			
d. Emergency lighting			
e. Searchlight(s)			
f. Running lights			
g. Position lights			
h. Navigation equipment			
i. Other			

4. LIVING QUARTERS

	GOOD	FAIR	POOR
a. Galley in general			
b. Stove			
c. Refrigerator			
d. Freezer			
e. Sleeping quarters			
f. Heads			
g. Other			

5. SAFETY EQUIPMENT AND ALARMS

	GOOD	FAIR	POOR
a. Life preservers How many? ___			
b. Work vests How many? ___			
c. Life rings			
d. Life raft or float			
e. Life ring lights			
f. Fire extinguishers How many? ___			
g. Fire hose			
h. Fog bell			
i. Whistle			
j. Flares			
k. Radios			
l. First-aid kit			
m. Bilge pump			
n. Other			

REMARKS/SUGGESTIONS: (Explain any item marked FAIR or POOR.)

_____

_____

_____

_____

_____

_____

Captain's Signature _____

Date _____

Sample Form B

VESSEL INSPECTION SAFETY EQUIPMENT CHECKLIST

Vessel _____ Date _____ Inspected by _____

DECK	OK	NOT OK	ACTION/REMARKS
Davits (check wirerope, hooks, hydraulic system)			
Deck free of oil/grease			
Fire hose stations			
Life rings with line			
Mooring lines			
Hatch covers			
Flammable liquid storage			
ENGINE ROOM			
Machine guarding (belts, chain drives, shafting)			
Tools secured - condition			
Deck/ladders free of oil/grease			
Flammable liquid/solvent storage			
Fire extinguishers			
Electric wiring			
Ammonia gas masks			
Bilges clean			
Metal receptacle for oily rag disposal			
Watertight doors (check dogs and gaskets)			
Steering gear, cables			
Parts stowage - secure			
Eye protection (provided/worn)			
Hearing protection (provided/worn, signs posted)			
Fixed CO_2 system			
FISH HOLD			
Adequate lighting			
Adequate ladders			
Adequate stanchions and pen boards			
Hatch covers			
Routing of shaft			
Access to pipes and lines			
Adequate ventilation			
Non-skid coatings			

Sample Form C

CAPTAIN'S REPORT

Vessel_____ Date_____ 19___ Voyage_____ Time_____ AM/PM___

ITEM	SAFE/OK	NOTE DEFECTS, COMMENTS	DATE CORRECTED
ENGINES & EQUIPMENT			
BILGE PUMPS & BILGE CONDITION			
BATTERIES — WATER/CHARGE			
ELECTRICAL SYSTEMS			
STUFFING BOXES			
FUEL AND SYSTEMS			
RADIO FREQUENCIES			
WORKING			
DISTRESS			
RADAR AND AUTOMATIC PILOT			
RUNNING AND OTHER LIGHTS			
CHARTS AND INSTRUMENTS			
COMPASS AND DEVIATION CARD			
MEDICAL SUPPLIES			
EMERGENCY SIGNALS AND FLARES			
ALL ALARMS			
FIRE EQUIPMENT			
SAFETY EQUIPMENT			
LIFE VESTS			
LIFE RAFT			
HULL CONDITION			
TRAWLING EQUIPMENT			

Vessel inspected as above is properly equipped
and considered ☐ Safe ☐ Unsafe for voyage

Signature _____ Title _____

Sample Form D

VESSEL INSPECTION SAFETY EQUIPMENT CHECKLIST

____ 1. Ring buoy/life raft/distress flares

____ 2. Fire extinguishers

__a.Engine room

__b.Galley area

__c.Pilot house

__d.Crew berth

____ 3. Radio telephone near helmsman position

____ 4. Additional anchor

____ 5. Shutoff valve at galley range

____ 6. Renew butane feed line from supply tanks to galley range

____ 7. Bilge alarm system

____ 8. Batteries in acid resistant container

____ 9. Wiring: fireproof chips

____10. Breaker switches or fuses

____11. Guards on protective covers on exposed machinery

____12. Navigation lights: U.S. Coast Guard regulations

____13. Portable bilge pump

____14. 4-hour intervals on engine room check

____15. Bilge piping system independent of seacock suction

____16. Battery-powered emergency lights: deck house and engine room

____17. Clean oil deposits: bilge propulsion engine

____18. Insulate exhaust pipe at bulkhead

____19. Bronze or stainless steel tailshaft

____20. Cable guides (deck mounted) near winches

____21. Guardrails around deck winch

Vessel _____ Inspector _____

Sample Form E

VESSEL INSPECTION SHEET

Vessel _____ Date _____ Location _____

NAVIGATION AIDS	OPERATIVE	NEEDS REPAIR	CONDITION	COMMENTS
Alarm system				
Bell (anchor, fog)				
Compass light				
Engine emergency shutdown				
Foghorn				
Navigation lighting				
Emergency lighting				
General lighting				
Pump system-bilge				
Pump system-ballast				
Pump system-fire				
Radar				
Radio				
Winches (anchor)				
Anchor line				
Rope condition				
Lights				
Chains				
Exhaust system working				
Check hatches and moldings				
Check handrails				
First-aid kits				
Check engine for leaks				

	OPERATIVE	NEEDS REPAIR	CONDITION	COMMENTS
Check hull for leaks				
Check for rust spots				
Check window glass				
Adequate tie-up lines				
Combustible materials				
Windshield wipers				
General housekeeping				
Check captain's log				
Lids on all containers				
Check ladders				
Check electrical 3 prong				
Check fuel tank leaks				
Potholders on stove				
Check captain's chair				
Air conditioning and heating				
Batteries (lights)				
Navigation charts				
Compass				

Sample Form F

Date _____

INSURANCE SAFETY INCENTIVE PROGRAM CHECKLIST

	YES	NO	ACTION
DECK			
1. Non-skid decks Comments:	_____	_____	
2. Proper handrails (in way of deck house doors) Comments:	_____	_____	
3. Ladders checked and secured Comments:	_____	_____	
4. Safety straps on overhead blocks installed Comments:	_____	_____	
5. All bottled gas to be strapped with metal belting Comments:	_____	_____	
MACHINERY			
1. Engine manifold cooling and exhaust properly installed Comments:	_____	_____	
2. No soft plastic lines or hoses below deck where subject to pressure Comments:	_____	_____	
3. Screening or filtering on bilge suction lines adequate Comments:	_____	_____	
4. Alarm signals for oil pressure and oil temperature in working order Comments:	_____	_____	
5. Check rigging for wear of pins, blocks and lines Comments:	_____	_____	
6. Check mast and boom — safety chains used where possible Comments:	_____	_____	
7. All portable equipment to have adequate tie-downs Comments:	_____	_____	
8. Anchor should be proper size Comments:	_____	_____	
9. Reel drive and belt guards where necessary Comments:	_____	_____	
10. Guardrails on winch Comments:	_____	_____	

Inspected by: _____
Safety group member

SAFETY EQUIPMENT

1. Fire and smoke alarms in engine room and galley _____ _____
   Comments:

2. Bilge alarm _____ _____
   Comments:

3. All safety equipment to be checked on a scheduled basis _____ _____
   Comments:

4. Distress flares and beacons (if not included in life raft) _____ _____
   Comments:

5. Adequate first-aid equipment _____ _____
   Comments:

6. Emergency rations (if not included in life raft) _____ _____
   Comments:

7. Automatic life raft _____ _____
   Comments:

8. Safety glass in front windows _____ _____
   Comments:

9. VHF radio with CH 16 capability _____ _____
   Comments:

FIRE PROTECTION

1. Extinguishers handy in all areas of need _____ _____
   Comments:

2. Extinguishers checked every 12 months or after use _____ _____
   Comments:

3. Extinguishers NOT TO BE USED AS COAT HANGERS, etc. _____ _____
   Comments:

4. Galley stove, properly insulated with automatic shutoff on fuel lines. No pilots without thermocouple shutoff valve _____ _____
   Comments:

ELECTRICAL EQUIPMENT

1. All wiring should be permanent, with overload protection _____ _____
   Comments:

2. Should have main battery disconnect _____ _____
   Comments:

Signatures: _____ _____
Owner or captain Vessel name

Sample Form G

VEHICLE INSPECTION REPORT

Vehicle _____ License No. _____
Inspection Expires _____ Inspected by _____
Mileage _____ Date _____
Return From Crew Change For F/V _____

Tires	Good	Fair	Poor
LF	☐	☐	☐
LR	☐	☐	☐
RR	☐	☐	☐
RF	☐	☐	☐
Spare	☐	☐	☐

Engine	Smooth ☐ Rough ☐ Burns Oil ☐
Transmission	Smooth ☐ Slips ☐ Leaks Oil ☐
Brakes	Good ☐ Pull to ___ side ☐
Front end	
Steering	OK ☐ Play ☐ Pulls to ___ side ☐
Other	_____

Windshield or glass damage _____

No glass damage ☐

ITEM	WORKING ORDER	ITEM	DAMAGED
Headlights	Yes ☐ No ☐	Top	Yes ☐ No ☐
Tail lights	Yes ☐ No ☐	Hood	Yes ☐ No ☐
Brake lights	Yes ☐ No ☐	Grill and front bumper	Yes ☐ No ☐
Turn signals	Yes ☐ No ☐	LF Fender	Yes ☐ No ☐
Emergency flashers	Yes ☐ No ☐	LH Doors	Yes ☐ No ☐
Horn	Yes ☐ No ☐	LR Fender	Yes ☐ No ☐
Windshield wipers	Yes ☐ No ☐	Trunk/tailgate and rear bumper	Yes ☐ No ☐
Windshield washers	Yes ☐ No ☐	RR Fender	Yes ☐ No ☐
		RH Doors	Yes ☐ No ☐
Speedometer	Yes ☐ No ☐	RF Fender	Yes ☐ No ☐
Jack and lug wrench	Yes ☐ No ☐	Interior	Yes ☐ No ☐

REMARKS:

Sample Form H

Dr. _____

Please furnish (company name and address)

_____

_____

the following report regarding my condition.

Signed _____

(To be detached and retained by reporting physician if desired)

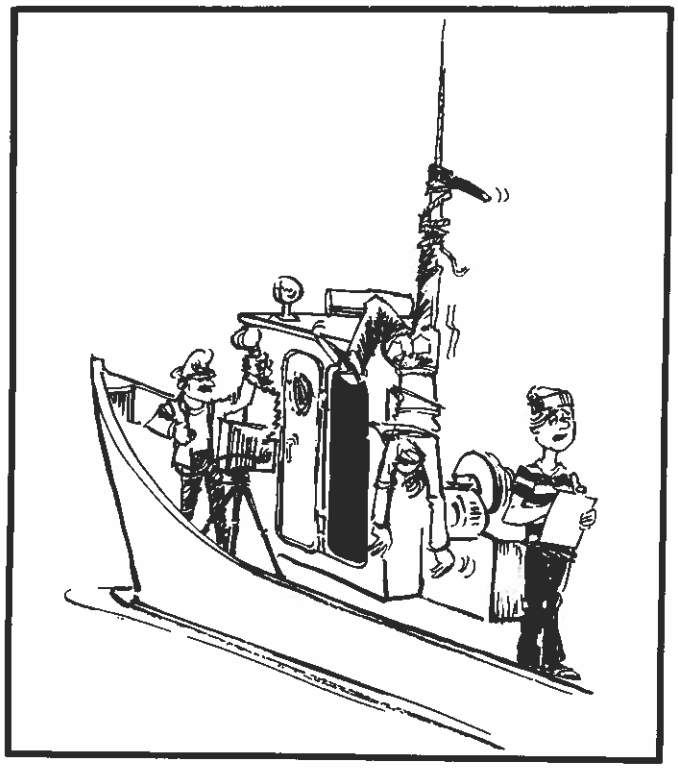
MEDICAL REPORT

PATIENT	Name _____ Age ___ Address _____ Occupation _____ Employed by _____
HISTORY OF CONDITION	Date of Accident _____ 19 __ History as described by patient _____ _____ _____ _____ _____ Date of your first treatment _____ 19 __
X-RAY	Date taken _____ 19 __ Where taken _____ Findings _____
DIAGNOSIS (Describe and locate character and extent of injury)	_____ _____ _____ _____ _____
CONTRIBUTING FACTORS	In your opinion, is disability solely a result of above described accident? _____ _____ _____
PROGNOSIS (Your estimate)	Total Occupational Disability _____weeks __ days. Ended __ 19 __ Partial Occupational Disability _____weeks __ days. Ended __ 19 __ (50 percent or more) Probable period of measurable discomfort __ weeks __ days. __ Ended __ 19 __ Estimated amount of your bill _____ If patient has been discharged give _____ (Date of discharge) and _____ (Amount of your bill) Estimated cost of medical treatment other than your own _____

Signed _____

Date _____ 19 ___ Address _____

Part 2: Reporting and investigating accidents



An accident reporting and investigation system is essential in any safety program. Not only is it often necessary to record and report employee accidents to process insurance claims and satisfy state and federal industrial safety regulations, but an investigation is also vital to determine and remove the fundamental and contributing causes of the accident to avoid recurrence. Accumulated investigation records represent historical data that can be readily analyzed to identify trends and problem areas, and provide clues to future accident prevention.

Since accident prevention depends heavily on information gathered from accident reports, it is important that personal injuries and vessel damages be reported accurately and promptly. Each new crewman should know the procedures and requirements for reporting injuries to the vessel captain.

Accident reporting procedures

Notify the shoreside base immediately. The more serious the accident (or illness), the more important it is to report without delay. *Do not discuss fault* over your marine radio. But do include in your verbal report (1) date, exact time and location of accident or injury; (2) name of the injured or ill person and his job aboad the vessel; (3) nature and severity of injuries or illness; and (4) description of the accident.

If the injury is caused by cable or rope or some similar piece of equipment, save as much of the cable, rope or equipment as possible for evidence. Turn this over to the vessel owner as soon as possible. Photographs of the scene of the accident are helpful.

Complete a Report of Personal Injury (or illness) on each injury or illness no matter how minor. (Examples of report forms mentioned are included at the end of this section.) The forms should be completed accurately, in as much detail as possible. Space for the captain's signature should appear on the form to encourage closer supervision of the crew and continued interest in maintaining safe working conditions.

Require each witness to an accident to complete a Personal Injury Witness Report in his own words. Additional statements from crew members who did not actually witness the accident or injury might be helpful.

Have the injured or ill person complete a Personal Injury Report as soon as possible. The captain should make sure the report form is complete, accurate and detailed; however, he should not instruct the injured person as to what answers to give on the report.

Enter the accident in the vessel daily log giving date, time, location and name of the injured or ill person.

Turn over all report forms to the vessel owner or operator as soon as possible along with a cover letter explaining any inconsistencies in the reports.

Upon receipt of these reports, the responsible personnel should review the information to satisfactorily answer these questions: (1) What caused the accident? (2) Why did the cause exist? (3) Is the accident likely to occur again? (4) What actions can be taken to eliminate the cause?

Hazards that can result in further injuries should be corrected immediately, and items of lesser importance should be corrected at the earliest opportunity.

Loss reporting procedures for physical damages

Every case of loss or damage to vessels or to property of others should be reported promptly to the dispatcher by telephone, if possible. If not possible, use your radio, but remember, *do not discuss fault* over the marine radio. If the loss is likely to exceed $1,500, use the fastest means of reporting. The more serious the loss, the more important it is to report it without delay.

Report (1) the date, exact time and location at the time of loss; (2) the name and address of the owner of the other vessel or property damaged or involved (if available, give the official number and type of other vessel involved); (3) name of the captain (and names of crew, if available) of the other vessel; (4) a brief, accurate description of the casualty or loss; and (5) a description of the damage to all vessels and/or property involved along with your best estimate of the amount of damage to each.

Enter the casualty or loss in the vessel's daily log.

Prepare the vessel accident report, an official written, complete report to the vessel owner. If the vessel will be away for more than 1 week, mail the form to the owner's office.

Dispatcher procedures following accident or injury

As a minimum, the following information should be recorded in the dispatcher's log:

The date, exact time and location of the accident or injury.

The name (firm) of vessel(s) involved.

The name(s) of other vessel(s) involved. Include name(s) of owner(s) or operator(s) of other vessel(s) involved.

The name(s) of injured person(s) and their job aboard the vessel.

Nature and severity of injuries.

Description of damage to vessel(s).

Brief description of the accident.

Requirements for reporting marine accidents

The owner, agent, master or person in charge of a fishing vessel involved in a marine casualty shall give notice as soon as possible to the nearest Coast Guard marine safety or marine inspection office whenever the casualty involves any of the following:

All accidental groundings and any intentional grounding which also meets any of the other reporting criteria or creates a hazard to navigation, the environment, or the safety of the vessel.

Loss of main propulsion or primary steering, or any associated component or control system, the loss of which causes a reduction of the maneuvering capabilities of the vessel. Loss means that systems, component parts, sub-systems, or control systems do not perform the specified or required function.

An occurrence materially and adversely affecting the vessel's seaworthiness or fitness for service or route, including but not limited to fire, flooding or failure or damage to fixed fire extinguishing systems, lifesaving equipment, auxiliary power generating equipment, or bilge pumping systems.

Loss of life.

Injury causing a person to remain incapacitated for a period in excess of 72 hours.

An occurrence not meeting any of the above criteria but resulting in damage to property in excess of $25,000. Damage includes the cost necessary to restore the property to the service condition which existed prior to the casualty, including the cost of salvage, gas freeing, and drydock. It does not include such items as demurrage.

Fishing vessels which are not documented, but have state or Coast Guard numbers are required to report to the authority that issued the numbers whenever the casualty results in any of the following:

A person dies.

A person is injured and requires medical treatment beyond first aid.

Damage to the vessel and other property totals more than $200 or there is a complete loss of a vessel.

A person disappears from the vessel under circumstances that indicate death or injury.

A report required by this section must be made:

Within 48 hours of the occurrence if a person is injured and requires medical treatment beyond first aid, or disappears from a vessel.

Within 10 days of the occurrence of death if an earlier report is not required by this paragraph.

Investigation of marine accidents and claims

Vessel owners or operators should use the following checklist in the investigation of an accident or claim.

1. Investigate every accident as soon as possible. Report any claim to your attorney or insurance underwriter promptly for an early investigation; cooperate with the marine underwriter and investigator assigned to the claim.

2. Statements from vessel operations personnel should be taken as quickly as possible. Always put them at ease during interviews. Get correct names, addresses and phone numbers from all witnesses and other involved personnel.

3. Be sure vessel operations personnel know the purpose of the investigation (to ensure that the same thing does not happen again.) Do not try to place the blame for the accident on anyone.

4. Encourage witnesses to offer their thoughts on the accident and on how it might have been prevented.

5. Do not begin the investigation with fixed opinions on the accident. Be objective in your investigation.

6. Do not downplay the seriousness of any accident. An accident that results in a minor injury could, under different circumstances, result in a casualty.

7. Look for unsafe conditions as well as unsafe acts.

8. Photographs of the accident made for documentation will not only aid the investigation, but if properly dated and signed, can be used as evidence if a court case results.

9. Summarize the findings of the investigation and make these findings known to those people interviewed. Thank those people who helped with the investigation.

10. Publicize the results of an accident investigation to ensure that a similar accident will not happen again.

Analyzing your safety program

For a safety program to be meaningful, it is necessary that it contribute measurable results. Comparison of accidents and injury records before and after program implementation does not always tell the whole story. Assess the types of accidents and injuries occurring. Evaluate all accidents reported and safety hazards corrected following an accident and injury analysis. Compile and analyze simple records of all accidents which occur in a company.

By analyzing injury records and frequency rates, injury causes, and peak accident periods, a general program can be plotted. This allows definite conclusions about measures to take for a maximum-effect safety program. The results should be circulated and discussed openly at all levels.

Forms to document accidents

The samples of accident report forms that follow offer specific sets of questions to be answered after an injury or accident. It is important to use the forms as soon as possible after an incident, so that information is accurate and detailed. Each crew member should know how to report an injury or accident. Each form should be signed, dated and submitted to the vessel owner. Blank copies of the forms should be kept by the vessel captain at all times.

These forms not only supply information needed for insurance claims and government reports, but also provide a valuable record for vessel owners and operators. Over a period of time, the forms can be analyzed to determine the most common causes of accidents and injuries so that the company's safety policies and training sessions can be updated.

The first five forms, A through E, are examples of forms to be filled out in case of an injury. The reports will help give an overview of the incident and help piece together what happened and why. There are two examples of forms to be completed by the injured party and the captain. A vessel owner may want to use these forms as a guide in developing a set of forms for a particular vessel.

Form F, a non-injury statement, can be used at the end of a trip or during a crew change. Coersion should not be used to get a crew member to sign the form.

Form G, a report of physical damage, can be used by the captain to record an accident and describe the details of the accident. This becomes a record of the accident and should be kept on file for reference during the investigation of the accident.

Form A

REPORT OF PERSONAL INJURY OR ILLNESS

To be Completed by Injured Party

The following detailed information is requested by owners:

Name of Vessel _____

Owner, Operator _____

Injured's Full Name _____ Social Security No. _____

Home Address _____

Age _____ Position _____ Married/Single _____

Name of Nearest Relative _____ Address _____

_____ Number of Dependents _____

Length of Employment _____ Earnings Per Month _____

Date Joined Vessel _____ Date Left Vessel _____

Date and Time of Injury or Illness _____ To Whom First Rerported _____

Location of Vessel at Time of Accident or Illness _____

Injured's Statement of How the Accident or Illness Occurred and Cause Thereof, If Known

_____

_____

_____

_____

_____

(Injured's Signature)

Nature of Injuries or Illness _____

_____

Had Crew Member Been Drinking Intoxicants? _____ Name and Address of Former Employer _____

_____

What Was Done for Man After the Accident or Illness? _____

Name and Address of Doctor and Hospital if Any _____

Condition of Injured When Leaving Vessel _____

Remarks of Captain in Charge of Vessel at Time of Accident _____

_____

Form B

PERSONAL INJURY REPORT

TO BE COMPLETED BY INJURED CREWMAN
THIS REPORT IS IMPORTANT; PLEASE ANSWER IN COMPLETE DETAIL

YOUR NAME _____

ADDRESS _____

YOUR OCCUPATION _____ HOW MUCH EXPERIENCE IN THIS OCCUPATION? _____

ON WHICH VESSEL DID ACCIDENT HAPPEN? _____

WHERE ON VESSEL DID ACCIDENT HAPPEN? _____

WHEN DID ACCIDENT HAPPEN? DATE _____ HOUR _____ AM/PM

WHAT PART OF YOUR BODY WAS INJURED? _____

DID YOU LOSE CONSCIOUSNESS? YES _____ NO _____ IF SO, FOR HOW LONG? _____

WHAT WERE YOU DOING WHEN ACCIDENT HAPPENED? _____

_____

DID ANYONE ELSE SEE THE ACCIDENT? YES _____ NO _____ IF SO, WHO? _____

WHAT WERE THEY DOING WHEN THE ACCIDENT HAPPENED? _____

_____

WAS FIRST AID NECESSARY? YES _____ NO _____ IF SO, WHO PROVIDED IT? _____

_____

NAME AND ADDRESS OF DOCTOR WHO TREATED YOU, IF TREATED _____

_____

HAVE YOU EVER HAD THE SAME OR SIMILAR INJURY BEFORE? _____

EXPLAIN _____

SIGNED, INJURED CREWMAN _____
DATE _____
CAPTAIN _____
DATE _____

TO WHOM IT MAY CONCERN:

YOU ARE HERBY AUTHORIZED TO RELEASE TO THE BEARER HEREOF ALL HOSPITAL RECORDS AND MEDICAL INFORMATION CONCERNING MY PHYSICAL CONDITION

SIGNED _____ DATE _____

Form C

CAPTAIN'S REPORT OF PERSONAL INJURY

Report to be submitted in all cases of injury

Crewman's Full Name _____

Position Held _____ Social Security _____

Vessel _____

How Long In This Position? _____

Date & Time of Injury _____, 19 ____ at _____ AM/FM

To Whom Reported? _____ Date Reported _____

Where Did Injury Take Place? Vessel ____ Purse Boat ____ Ashore ____

Exact Location _____

Was Crewman on Duty at Time of Injury? Yes ____ No ____

Nature of Injury (Please describe in detail. Use back of page if necessary.)

_____

_____

How was Injury Treated? _____

_____

Was Crewman Placed Ashore? Yes ____ No ____ If yes, How and When _____

_____

Has Crewman Returned to Work? Yes ____ No ____

Weather Conditions at Time of Injury:

Wind Direction _____ Wind Velocity _____ MPH

Sea State _____ Wave Height _____ FT

Rainy or Dry _____ Location of Vessel _____

What Happened? _____

_____

Why Did It Happen? _____

_____

What Action Have You Taken to Prevent A Similar Occurrence? _____

_____

What Action Do You Recommend To Prevent A Similar Occurrence? _____

_____

Captain's Signature _____ Date _____

Form D

PERSONAL INJURY REPORT

TO BE COMPLETED BY CAPTAIN OF VESSEL

Name of Injured _____ Occupation _____

F/V _____ Enroute From _____ To _____

Date of Report _____ Date of Accident _____ Hour _____

Exact Location of Vessel _____

State What Crewman Was Doing When Accident Occurred; Give Exact Location on Boat; Draw Sketch on Back of This Report _____

_____

_____

Weather Conditions _____

Gear, Equipment, Tools or Machinery Involved, If Any _____

_____

Name of Immediate Supervisor _____ Position _____

When was Immediate Supervisor Made Aware of Injury? _____ A.M. _____ P.M. _____

Description of Injury _____

_____

Was First Aid Given? _____ By Whom _____

Did Injured Go Ashore for Treatment? _____ Where _____

Did Injured Return to Duty After Receiving Treatment? _____ If Not, Why _____

_____

What Verbal Statement Did Injured Make as to Cause of Accident and To Whom? _____

_____

List Name, Rating and Address of All Witnesses _____

_____

_____

Captain's signature _____ Date _____

Form E

PERSONAL INJURY REPORT

To be Completed by Witness to Injury

NAME OF INJURED CREWMAN _____

OCCUPATION _____ DATE _____

VESSEL INVOLVED _____

EXACT LOCATION ON VESSEL ACCIDENT OCCURRED _____

_____

DESCRIBE IN DETAIL WHAT INJURED WAS DOING AT TIME OF INJURY _____

_____

_____

_____

_____

_____

WHAT WERE YOU DOING AT TIME OF ACCIDENT? _____

_____

_____

HOW FAR WERE YOU FROM THE INJURED CREWMAN? _____

_____

GIVE IDENTITY OF ANY OTHER WITNESSES _____

_____

_____

_____

SIGNATURE _____ DATE _____

POSITION _____

ADDRESS _____

_____

HOME TELEPHONE _____

Form F

NON-INJURY STATEMENT

VESSEL: _____ DATE: _____

I certify that I have not had an injury during this trip:

SIGNATURE	POSITION	CREW CHANGE From _____ To _____

MASTER'S COMMENTS

INSTRUCTIONS TO MASTER

1) The above information must be completed immediately upon completion of crew change.
2) It should be attached to the vessel log and turned in along with the log.
3) If any crew member reports an injury, a personal injury report must be completed immediately and turned into the general manager or designated owner's representative.

Form G

REPORT OF PHYSICAL DAMAGE

Name of Vessel _____

Owner/Operator _____

Date and Time of Incident _____ Location _____

Wind _____ Seas _____ Visibility _____

F/V Enroute From _____ To _____

Name of other Vessel(s) or Property Involved _____

Owner of other Vessel(s) or Property _____

Name of Captain of other Vessel _____

Describe the Incident _____

_____

_____

_____

_____

_____

_____

Describe Damage to all Vessel(s) and/or Property _____

_____

_____

_____

Names of Personnel Injured (also fill out Report of Personal Injury or Illness form)

_____

_____

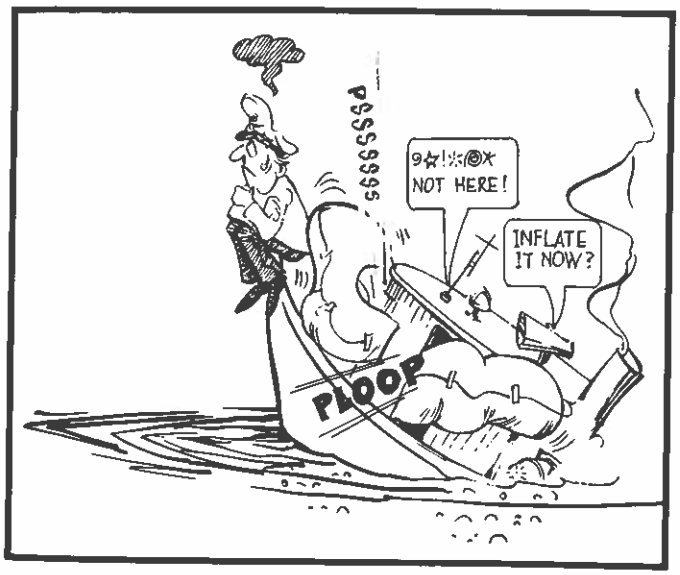
_____

_____

_____
Captain's Signature

Use Reverse Side for Additional Information or Diagrams

Part 3: Survival at Sea*



No vessel owner or operator deliberately jeopardizes his own or his boat's safety, and every experienced vessel captain considers himself competent in operating his vessel. However, accidents can happen anywhere, at any time, to even the most experienced mariner. So it is important to know how to deal with an emergency situation, e.g. how to survive if the vessel is heavily damaged or lost, or what to do if a crew member is injured or ill.

This section deals with emergency procedures and survival techniques and equipment.

Emergency procedures

Every case of sickness or injury has its own special problems but these general rules apply to almost every serious situation.

Get the victim to a doctor. Use your radio to get medical advice from the Coast Guard.

Don't push the "panic button" — keep calm.

Don't worry about using manufactured first-aid materials — do the best you can with what's handy.

Keep the victim lying down with his head on the same level as his body until you know the extent of his injury; don't move him more than needed.

Look for signs of serious bleeding, difficulty in breathing, shock, burns, and broken bones. Be sure you find all injuries. While looking for (or treating) injuries you may have to remove some of his clothing. Be as gentle as you can — you may have to cut the clothing off. Don't remove more clothing than necessary because it may increase the chance of shock. Be sure there is no tight clothing around his neck, chest, stomach, legs or ankles. Treat the injuries in order of importance: (1) bleeding, (2) breathing, (3) shock. Bleeding and "no breathing" are the two biggest worries. Shock will usually follow all serious injuries. Remember these injuries must be treated immediately — delay can cause death.

Don't move a person with a broken bone until the broken area is stabilized by a splint.

An injured person sometimes will vomit. If this happens and the person is lying down, turn his head to the side to prevent him from choking.

If the victim is unconscious, vomiting, or has been injured in the chest or stomach, do not try to give him liquids.

Keep the person warm.

Do not move the injured person unless you have to.

More information on how to deal with specific first-aid procedures can be obtained from a first-aid manual. (The Marine Advisory Service at Texas A&M University has an abbreviated, easy-to-read chart entitled "Emergency First Aid" which can be ordered by any vessel owner or operator. Written in both English and Spanish, it serves as a ready reference in the event of an emergency aboard a vessel.)

Most of this section has been taken directly from a University of Alaska Sea Grant Publication entitled, "Safety Notes for the North Pacific Fisherman," Marine Advisory Bulletin No. 3, March 1975.

Marine organisms

Injuries can occur not only from ship-related activities, but also from numerous marine organisms in the Gulf which can inflict painful and serious wounds.

Sharks, even small ones, with their razor-sharp teeth, are capable of serious injury, and "dead" sharks have reflex actions which can close their mouths on hapless hands or feet.

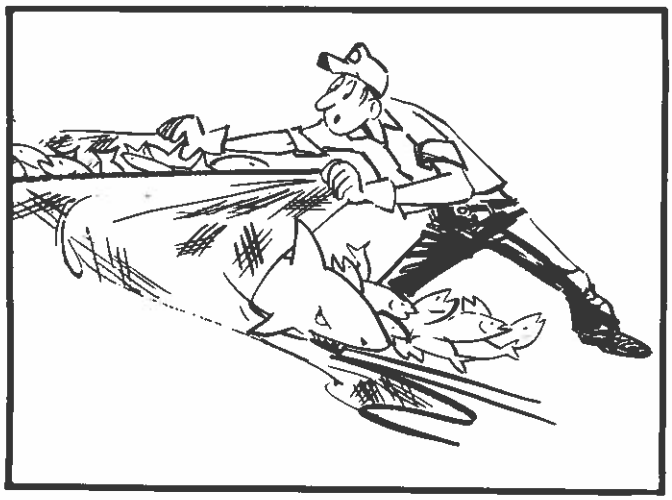
Smaller organisms, including jellyfish, rays, sea catfish, and other spiny-rayed fishes, may pose problems for fishermen sorting the catch or bringing nets aboard. A strong ammonia solution should be applied to areas stung by jellyfish tentacles. Puncture wounds inflicted by the dorsal spines of sea catfish and spiny-rayed fishes should be soaked, for at least 2 hours, in a bucket of hot water with a liberal amount of Clorox, Purex or other disinfectant added. The slime on these spines, that protects the fish, causes rapid infection in human wounds. While the dorsal spine of a sea catfish can pierce the bottom of a tennis shoe, rays can leave the sheath from their stinger embedded in a man deeply enough to require surgical removal. A wound caused by a ray should be treated by a physician as soon as possible.

Not all injuries are as serious as these, but any wound should be cleansed with an antibacterial agent and covered with an antiseptic.

Fumes

Even after you've sorted out hazardous marine organisms, your catch is still a source of possible injury. The bacteria associated with fish and shrimp degradation, *pseudomonas putrefaciens,* can become concentrated in the bilge of the ice hold where it thrives in organic rich waters of the drip from your catch. As the bacteria proliferates in the water, substantial quantities of oxygen are consumed, and when the level of oxygen reaches anaerobic conditions, the bacteria begin to generate hydrogen sulfide.

Hydrogen sulfide is highly irritating to the body mucosa — eye irritation results from even low concentrations, while irritation to the upper respiratory tract results from slightly higher concentrations. In low concentrations, hydrogen sulfide provides a warning odor suggestive of rotten eggs. At larger concentrations, however, the gas desensitizes the sense of smell. Thus an individual could become exposed to a lethal dose without any



forewarning. Exposure to high concentrations acts as a systemic poison on the nervous system and causes respiratory arrest, coma and death. In its toxic affect on humans, hydrogen sulfide is as lethal as hydrogen cyanide.

To prevent toxic accumulations of hydrogen sulfide, fish holds should be vented prior to entry and the ice hold bilge kept as dry as possible.

Burns

Minor burns should be cooled with tap water to remove heat from the area. Apply commercial topical dressings to assist in healing. Serious burns require prompt and special attention. DO NOT ATTEMPT ANY TREATMENT OF THE BURN ITSELF. The burned area should be covered with sterile, lint-free material and soaked with sterile water if possible (if sterile water is not available, any potable water may be used). Treat for shock immediately and get medical attention as soon as possible. Give the person as much fluid as possible to counteract the loss of body fluids. Any person burned over one-tenth or more of his body will usually go into serious shock and the result of shock will be the key to whether he lives — so TREAT FOR SHOCK.

Crushed appendages

An all too common injury, this usually occurs when someone puts his hands or feet where they don't belong. Unless the appendage is severely traumatized, the only first aid available is cold compresses and elevation of the injured area. If within 2 or 3 days the effected area has lost its feeling, a physician should be contacted.

Fires

The best way to fight a fire is to remove every possible cause of fire you can. Remember a fire needs three things: something that will burn, air (oxygen), and enough heat to start it. Carbon dioxide (CO_2) extinguishers have stamped into them how much they should weigh when full — a fish scale will tell you when one needs a recharge. Dry chemical extinguishers are excellent for all types of fire. They have gauges or their tops unscrew to show the brass seal. (A broken seal means the extinguisher is no good.)

If you have a "Class A" fire (paper, clothes, wood, bedding, etc.) your best move may be to simply try to dispose of the burning material overboard. (Mattresses afire, for instance, are extremely difficult to extinguish.) If it is a "Class C" or electrical fire — cut off the current. (You may have to secure your engine and pull your battery cables.) If it is a "Class B," or fuel fire, it will probably occur in the bilges where spilled or dripped fuel collects, and where fumes (which are heavier than air) collect. Depending on its location you may or may not be able to secure your fuel line to the engine (a good early move). For any type of fire either carbon dioxide (CO_2) or dry chemical is good extinguisher. Aim your nozzle at the base (source) of the flames, and rapidly sweep the nozzle back and forth — "pushing the flames into a corner". DON'T aim the nozzle steadily into the center of the fire. Remember, both types of extinguishers go empty very quickly. Also, remember a fire can "reflash" even after it seems to be completely out. Embers may be smoldering and fuel in the bilges may be hot enough to start burning again. Electrical shorts can re-start fires.

A fire inside a boat can produce deadly carbon monoxide gases in addition to heavy smoke. Once the fire is completely out, thoroughly ventilate the area.

A firefighting guide entitled, "Marine Fires: Preventing Them, Fighting Them" is available from Oregon State University as published by the Oregon State Sea Grant Program. Figure 1 is a table providing basic information about various firefighting systems as reproduced from that publication.

Figure 1 — *Basic firefighting systems and how to use them*

System	Advantages	Disadvantages	Types of fire to use it on	Where to use it
WATER (bucket, hose, hand pump)	Cools the fire.	Heavy. Can cause drastic change in vessel stability — and possibly capsize your vessel. Not to be used near engine air intakes or on electronic, electric, galley (grease), and oil-heating stove fires.	Wood, mattresses, paper.	Topside.
WATER (under pressure and applied to fire through a nozzle that emits a spray)	Cools the fire. Spray allows firefighters access to burning area.	Difficult to use on grease or oil fires.	Wood, paper, rags. To cool oil fire.	Berthing spaces. Engine-room spaces.
CARBON DIOXIDE (CO_2) (extinguisher)	Compact. Easy to use. Easily transportable throughout the boat. Engines and electronic gear easy to clean after being sprayed with CO_2.	Does not cool the fire, setting up the possibility of a reflash. Requires space to be secured (no drafts or ventilation). Blanket must sometimes be left in place for extended periods. *Cuts down oxygen;* firefighters will collapse if they inhale too much CO_2. Not good for topside fires.	Electrical, electronic, engine room fires; oil and grease (be careful not to spread the fire by blowing hot oil or grease all around with CO_2).	Electronic spaces, engine room, galley.
HALON (FREON) (extinguisher)	Same as CO_2 but less hazard to firefighters after breathing. Heavier than CO_2 — somewhat more useful than CO_2 topside and in drafty spaces.	Expensive to recharge. Possibility of reflash if blanket is not left in place long enough.	Electrical, electronic, engine room, oil and grease.	Electrical and electronic gear, engine room.
CARBON DIOXIDE (CO_2) HALON (FREON) (built-in system)	Fast extinguishing for inaccessible areas; can be triggered remotely — if properly installed; allows firefighters to keep away from fire.	More expensive; must be installed by a professional; only covers space where installed; needs periodic check to insure that no modification to boat has made system inoperable.	Electric, electronic, engine room, oil and grease.	Engine room; confined space where electronic gear is concentrated.
DRY CHEMICAL	Compact. Easy to use. Easily transportable.	Bottle should be vertical for most effective discharge. After-fire cleanup of chemical powder is time-consuming and difficult. Electronic gear is almost impossible to clean after exposure to dry chemical.	Engine, oil and grease, electrical.	Galley (unless the galley is close to electronic gear); engine room.
PYRENE	DO NOT USE.	When put in contact with fire, phosgene gas is emitted — *toxic to those in the vicinity.*	DO NOT USE.	DO NOT USE.
CAN OF BAKING SODA	Cheap, effective, easy to clean up.	Difficult to apply to fire without sustaining hand burns.	Grease fires on galley stove tops.	Galley.

Survival techniques and equipment

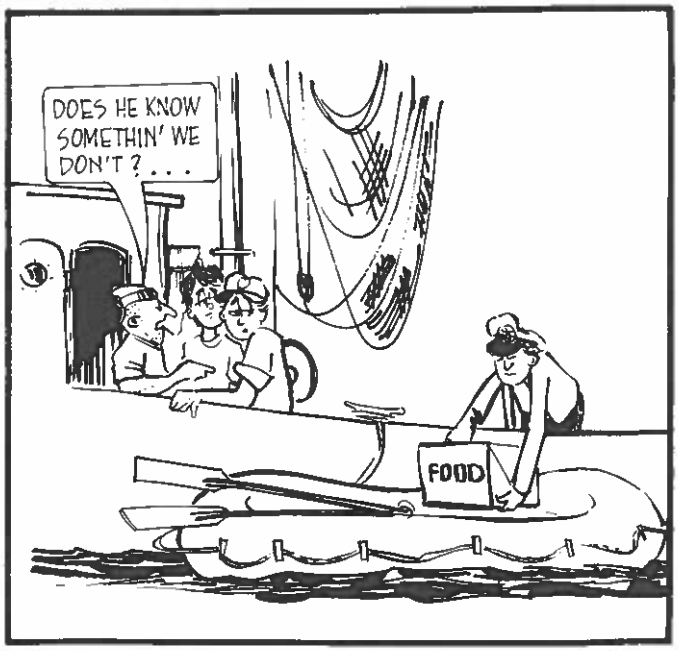
Abandoning ship

When all attempts to save the vessel have been exhausted and the crew is in jeopardy, you may decide to abandon the vessel. You will normally have a few minutes to "get organized" before having to abandon. First, launch your rubber raft or skiff downwind. If you have a raft, push the plunger on the release mechanism to free the grips. Pick the raft up by the finger slots at each end and toss it overboard, after being sure the cord on it is secured to your boat (it's a good idea to keep it secured always). Unless you have shortened the operating cord for some reason, you will have to pull about 100 feet of cord before being able to give the sharp tug needed to inflate the raft. Inflation takes about 30 seconds, and the cord acts as a painter. Meanwhile be sure that your life jacket is securely fastened. If additional food, liquids, blankets, or clothing can be put in the raft or skiff, do so. Don't be overly choosy — there isn't that much time. (Even canned turnips taste good on the third day adrift.) Be sure you have your knife with you.

A life raft is a wonderful piece of equipment. But like any other piece of equipment, it can be no better than its operator. The life raft will serve its purpose — which is to save your life in case of a shipwreck — only if you, the operator, handle it properly.

A copy of the instruction manual supplied with the life raft should be available on board the vessel, and should be studied — not only read, but studied — not only by the skipper but by every man in the crew. Because the vessel's life raft is in its capsule, ready to go in case of need, it is not available for drills. Life raft boarding/behavior demonstrations (by dealers, inspectors, Coast Guard, etc.) should be attended whenever possible by all potential users, skippers and crew alike. Not that such a demonstration is as valuable as a drill. But it is the best substitute available.

A raft canopy — which automatically raises — is strong enough to jump on to board. When jumping,



be aware of the canopy fixtures: protect your face with your arms; throw the trunk of your body onto the canopy.To minimize the height of the jump, watch the waves, and hit the canopy as the raft surges up on a sea. When all are aboard, ride out the full length of the painter. Unless you are riding badly (e.g., shipping water), keep secured to the painter. The painter holding you to your boat is designed to break at a point much less than would pull you under. There is no danger of getting "sucked under," though you should be far enough out to ensure against being struck by masts, booms or trolling poles should the boat roll over on its way down. There are a couple of good reasons for keeping attached to your boat. First — many vessels have been abandoned, only to stay afloat due to some inexplicable quirk, and later be saved. Second — if help is on its way, you'll be closer for a little longer to your broadcast position, and as long as your boat still floats (even if lying on its beam) you'll be easier to spot from air and sea, both visually and on radar.

When and if you are drifting "free" in the raft, check to be sure that your "sea anchor" (drogue) is not fouled. It will stream automatically on many rafts. In addition, most rafts have a spare packed aboard. When it is doing its job, you'll drift less than 1 knot in a 40-knot wind.

More often then not, a skipper has a certain "feeling" that abandoning may be necessary long before the word is given. Why not "swallow your pride" and launch your raft early — and hopefully unnecessarily. Fill it with provisions: blankets, clothes, water, food, etc. Should the launching prove unneeded, the raft can be towed to port for repacking.

Life rafts of identical manufacture and quality, and approved by the U.S. Coast Guard, may be

quite diverse in "lifesaving quality." Rafts may be purchased supplied with different equipment, such as "ocean pack" and "limited pack." The limited pack is just what the name implies — limited. THE OCEAN PACK IS STRONGLY RECOMMENDED. A life raft so equipped will include flares, smoke signals, air/water pump, patching kit, canned food and water, can opener, knife, sea anchor (drogue), rainwater catch, rainwater storage bags, first-aid kit, flashlight, signal mirror, heaving line, and repair kit.

Lights atop and inside the canopy operate automatically for 12 or more hours (enough time to get organized). When you must leave your vessel, pull the raft up as close as possible and hold it while everyone gets in. Try to stay as dry as you can; being dry will save you from discomfort later and may enhance your chances of survival.

If your boat is small you may not be willing to pay $1,000 or so for a raft. This doesn't mean you should not have some form of escape — how about that skiff you've got aboard? You can adapt it. Plan ahead. Fill the space under the thwarts (seats) — and anywhere else that's practical — with styrofoam blocks (secured, of course). Prepare an "Abandon Ship Kit" with items as follows:

One knife and one small hatchet

Three cans of water per man and one can opener

One 6 ft. × 6 ft. polyethylene sheet per man (thin)

Two smoke flares and two night flares

One ball of cotton twine

One box of wooden safety matches

Place these items in a dry, sturdy, plastic bag and seal it. This small package can be either permanently stowed in the boat or kept handy nearby. The polyethylene sheets are cheap and compact. They will provide some cover from the wind and rain while afloat.

Water

Your body is about 70 percent water. Maintaining the "water balance" of your body is the prime requirement for survival. Thirst is not always due to water need. The sensation of thirst can be created by sugar and salt — and even by sweetened beverages. So when water is scant, avoid such food and drink. If you have no water supply DON'T EAT. Digestion of food will drain needed water from your body — you can probably last up to over a month without any food, but not much more than a week without water. Every bit of body water you conserve increases the length of your survival. Thus you should eat minimum quantities of food and avoid perspiring. A person stranded adrift should take no water the first day, and 1 pint a day each day thereafter until rescue or water depletion. If you are without water completely you will probably get delirious in about 4 days. If one of your members becomes delirious it may take physical force to keep him aboard.

Thirst may be reduced by chewing on gum — or practically anything. However, this relief does not reduce the body's need for water. Seawater has a salt content of 3½ percent. That is equivalent to a full teaspoon of salt in a 6-ounce glass of water. The salt content of seawater is three times greater than that of human blood. Drinking seawater will exaggerate thirst, promote water loss through the kidneys and intestines, and shorten your survival time.

Under the conditions of lack of water, urine is too concentrated to be drunk. Its toxic waste products will add to the agony of thirst, contribute to dehydration, and lead to excessive body heat of 105 degrees and over. Drinking urine will cut down your survival time.

Alcohol will promote water loss through the skin and kidneys. Drinking alcohol under the conditions of lack of water is suicidal.

When no food is eaten during water deprivation, energy must be obtained from the body's own fats and proteins. In the process of turning the body's fats and proteins into energy, water is manufactured, and this body-made water helps maintain kidney activity. By not eating when you

don't have enough water available, you will actually prolong your life.

Catch a fish. If it is large, carve a cup-shaped hole in the meat. If it is small, cut up the meat and squeeze it through a cloth. The water which collects in the hole, or is squeezed, is totally salt-free and will quench your thirst even if it doesn't taste very good.

Food

In gathering your abandon-ship rations make every possible effort to obtain "double-duty" food (foods with high water content plus nutritional value).

Water contents of vegetables: beets, 87 percent; sweet potatoes, 68 percent; radishes, 93 percent; carrots, 88 percent; potatoes, 77 percent; tomatoes, 94 percent; turnips, 90 percent; onions, 87 percent; lettuce, 94 percent; cabbage, 92 percent; spinach, 92 percent; squash, 95 percent.

While water content should be the first consideration for selecting abandon-ship rations, it is advisable to add (if possible) some compact food of higher calorie (or energy) value. (Figures given in calories per pound.) Jam, 1300; coconut (dried), 2600; condensed milk, 1500; walnuts, 3300, cheese, 1800; butter, 3500; chocolate candy, 2500.

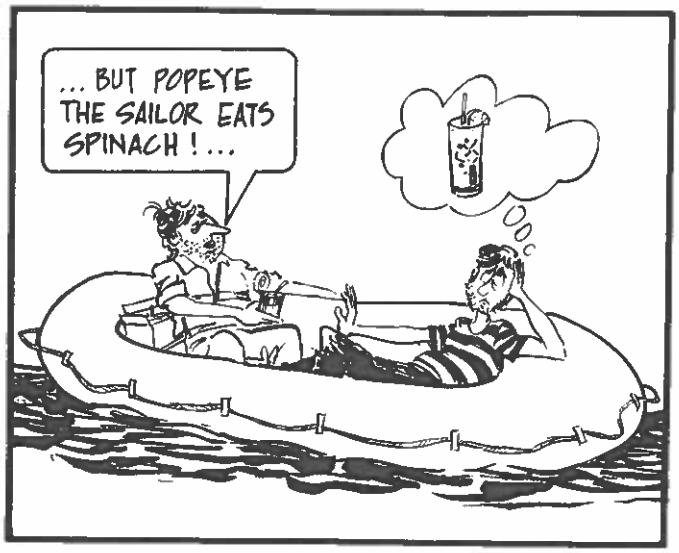
Liquor contains considerable energy value but tends to dehydrate the body.

COLD WEATHER FOODS: Sugar and fats are rapidly absorbed by the tissues, and supply a quick source of heat and energy. Foods rich in sugar and fats should be rationed during cold weather. Butter, cheese, dried milk, nuts, coconut, chocolate and cocoa drinks are rich in fats. Chocolate candy is an excellent "cold-weather food," in both sugar and fats.

SEAWEED AS FOOD: Laver, Irish moss, and agar are used as human food; but unless you have a plentiful supply of water, you are advised not to obtain nourishment from seaweed. Not only are seaweeds tough and salty, but they also absorb large quantities of water, leaving you with an intolerable thirst.

Staying Warm

This is not too great a problem in a canopied raft where the temperature can be kept at about 70 degrees during freezing weather. In addition to wearing warm clothing if at all possible, there are



several other ways to stay warm. Most rafts have seat tubes and floors which must be inflated by a hand pump packed aboard the raft. These provide good insulation from the cold, damp, raft bottom. The doors of all rafts are easily closed. If sufficient warmth cannot be attained while the doors are partly open to provide adequate ventilation, then button them up tight. When the "stuffiness" becomes unbearable, open BOTH doors simultaneously for a moment. Wind will whisk the bad air out in a moment...then button her tight again and warm up. All survivors should huddle together as much as possible, and take particular care of their hands and feet. Placing your bare hands under your armpits is a good way to keep them warm. Place your bare feet under another's thigh for maximum warmth.

GREASE: Grease spread over the body will NOT protect you from the cold. Grease will make your clothes less protective by filling the air pockets, which are the real source of warmth. In a high wind, grease (of any type) on the face will prove helpful, but it is useless in still cold. A small amount of oil may be applied to the feet, and rubbed in until the surface is dry. A large quantity will prove harmful.

CLOTHING: Warmth from your clothing is supplied by air pockets between the fibers and air layers between the layers of clothing. These air layers prevent too much heat from getting out and too much cold from getting in. Clothing should not be too tight. Particularly avoid tight shoes. Loosen the shoestrings. Wear two or more pairs of socks — woolen over cotton.

WOOL AND FUR: Woolens and furs offer excellent protection against the cold because non-conducting air pockets are formed in the meshes, and these air pockets provide insulation between the skin and the outer temperature.

Heat

During most of the season in the Gulf of Mexico, the heat and not the cold is the environmental factor with which you must be concerned. Preventing sunburn is much easier than treating it. Many people are severely burned because they fail to realize that the effects of sunburn are not felt until several hours after exposure. If you wait until your skin turns pink or feels hot before you cover it, it will already be too late. Second and third degree burns can result from exposure to the sun just as from exposure to an open flame, although it does take somewhat longer.

Two other related illnesses are sunstroke and heat exhaustion. Sunstroke is the result of direct exposure to the sun. It may affect you suddenly, but is usually preceded by dizziness, nausea and headache. Heat exhaustion is the result of long exposure to heat when the temperature and humidity are high. It may occur without exposure to the sun.

After addressing heat injuries, it may seem somewhat strange to talk about hypothermia, which is usually associated with cold water. But be aware that you can suffer from hypothermia even in tropical waters. Your body will begin to cool whenever you are immersed in water cooler than 92°F. The warmest ocean waters that can be expected anytime of year is 84°F.

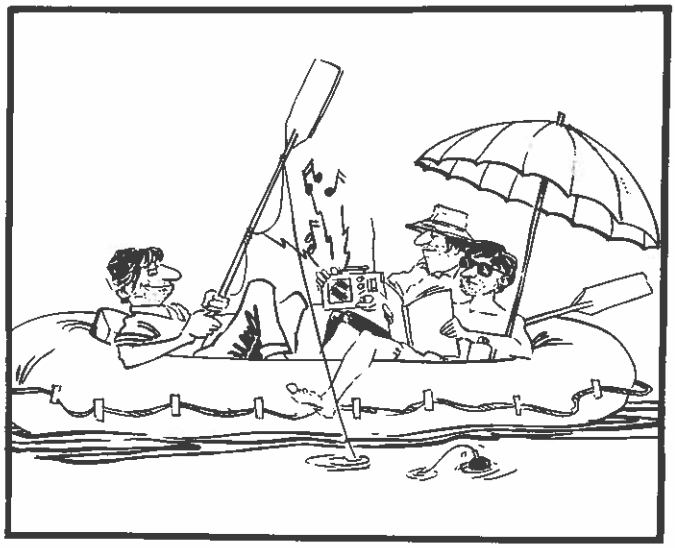
Sickness

These are ailments frequently experienced by survivors.

VITAMIN DEFICIENCIES: If your gums bleed and have a bruised appearance, you have a touch of scurvy, caused by a lack of vitamin C, which is found in fresh fruits and vegetables.

The inability to see well in a dim light indicates night blindness, the result of vitamin A deficiency. Vitamin A is found in carrots, peaches, cod liver oil, butter, eggs, milk and beef liver.

The peeling and scaling of your skin, knee jerks and other indications of nervousness, which may or may not be accompanied by headaches, back pain and depression, show that you are a victim of pellagra. Pellagra is associated with a deficiency in niacin and protein. These symptoms are mentioned so you will not worry about having a dangerous disease; because scurvy, night blindness, and pellagra are diseases caused by a bad diet. After you reach land, proper food will cause these symptoms to disappear. Forget them.



Staying cheerful

Do not undervalue morale. Your state of mind can give you courage and confidence. The lack of morale has proved fatal far more often than the lack of water. Morale is the total of little things. Don't underestimate these trivialities.

EXTRA FOOD: If food beyond the usual rations has been salvaged, save it for periods of gloom.

WATER: Your canned water may taste "flat" — but it is not bad and is still water! Remember that a man who has a fever or is a diabetic requires more water than others. Allow him an extra ration.

LIQUOR: Liquor should be rationed out during squally weather, and to men on watch, during stormy nights. Remember the effect of dehydration though, and save the "party" for after the rescue.

BODILY FUNCTIONS: With short rations bowel action is often stopped. This is normal and no cause for alarm.

BEDDING: Spread life preservers on the bottom for those who are turning in.

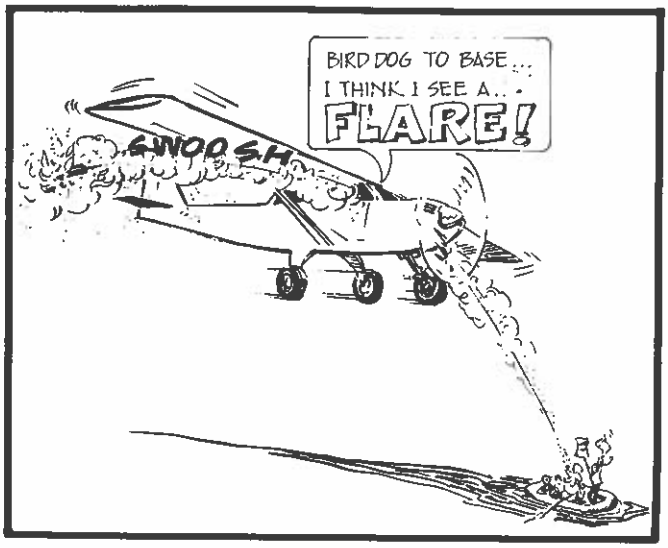
IMPARTIALITY: From Captain Bligh we quote a method that was time-honored even in 1789: "I divided it (a noddy, about the size of a pigeon), with its entrails, into 18 portions, and by a well-known method of the sea, of 'who shall have this', it was distributed with the allowance of bread and water for dinner...One person turns his back on the object that is to be divided: another then points separately to the portions, at each of them asking aloud, 'Who shall have this?' to which the first answers by naming somebody. This impartial method of division gives every man an equal chance of the best share."

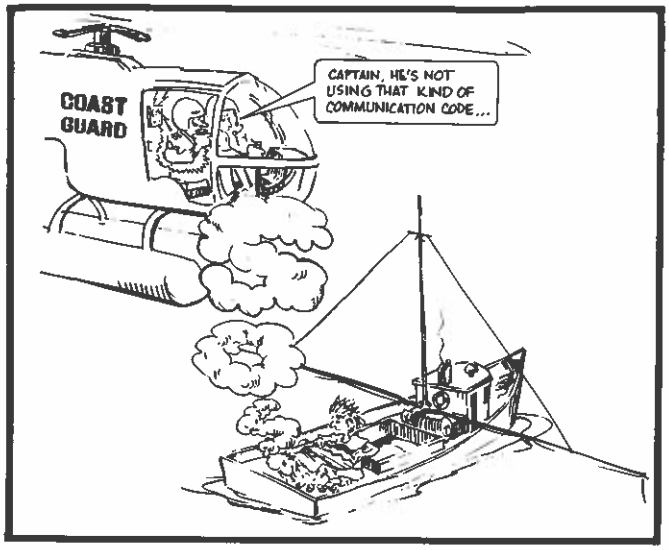
Recreation

Do not overlook recreation. A portable radio, tuned to dance music and news for the crew will help morale. Plastic cards will eliminate long stretches of daytime boredom, since they are not affected by salt air, water, heat or humidity.

SUICIDE: The suicidal impulse is no stranger among survivors. The victim of hysteria cannot help himself. The man who suddenly starts over the side, saying, "I'm going down to the corner for a glass of beer," is suffering from hallucination, disassociation of time and place, and it is your duty to restrain him.

Your principal hope after a disaster has struck is to get someone to pick you up. As mentioned above, however, you must take all action as if you did not expect rescue for weeks. This is necessary because although most rescues are made within hours of the disaster, some stretch on for many days. So PLAN AHEAD. Don't waste anything — food, water, physical strength — nor signaling gear.





Rescue

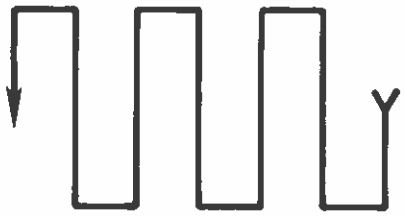
All signaling gear is good. "Radar" flares are visible on radar 250 miles and more away — well worth the investment. Flares (either hand-held or "Very" lights) can be seen at night as far as 20 to 24 miles, and smoke as far as 16 miles (with little wind) by day. Dye will persist over half an hour (in moderate seas) and is easily seen from the air (at up to 4 miles distance). Since a skiff, raft, or even a fishing vessel is difficult to see from sea or air at any substantial distance, it is essential that you properly use signals. You must never assume you have been sighted, but continue your efforts until certain. An aircraft will always clearly show when he sees you — perhaps by "buzzing." Remember that an aircraft may have to leave you due to weather, fuel, or darkness. Sit tight and save further signals for his return — he'll be back.

Hand-held flares must be held out over the water on the downwind side at an angle to prevent hot "drippings" from burning either you or the skiff or raft. Burning skiffs and rafts make bright signals — but don't float well.

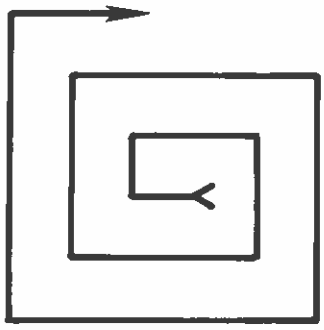
Many signaling devices work from both ends (don't trigger both ends at the same time, of course). Be sure to "douse" the end you have used in water and save the signal at the other end — if it is that type.

Signaling mirrors are effective devices, (visible about 8 miles) but not as good as flares or smoke. Don't forget that even your shirt afire on the end of a paddle is better than nothing.

Searchers use carefully computed patterns. If you can detect the type of pattern being used, you should save your signaling device for when the searcher is closest. Searches will usually be made in either "parallel sweeps"



or "expanding squares"

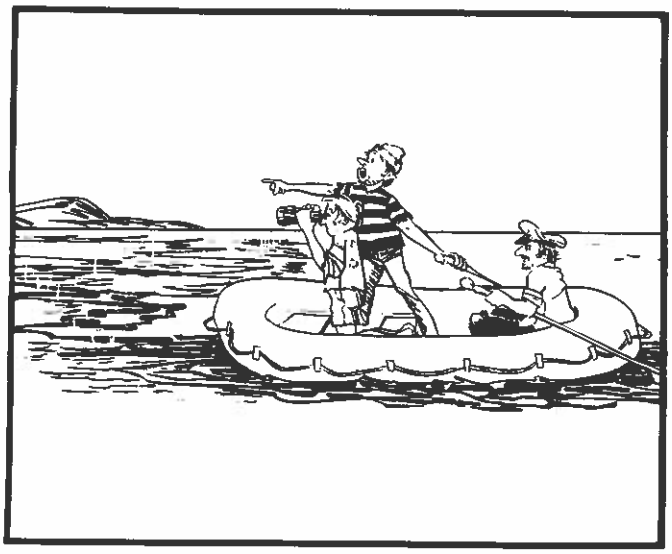


Raft navigation

This may seem an impossible subject — but you can control your movements. First of all, be sure your "sea anchor" (drogue) is working properly. This will reduce your drift rate tremendously, and thus make you easier to find. For instance with a 10-knot wind you will drift 7 miles a day with a drogue as opposed to 20 miles a day without it.

However, if you are reasonably close to shore, and the wind is onshore, it may be wiser to let the raft drift. You can steer it with your paddle up to about 45 degrees off the wind without too much difficulty or loss of speed. You can control your direction downwind up to 40 degrees off the wind depending on where you secure the "sea anchor" to the raft. Unless you are specifically trying to "sail" to a particular point, you should attempt only to sail directly downwind, and have your "sea-anchor" streamed. This will keep you in the middle of the search patterns being computed ashore.

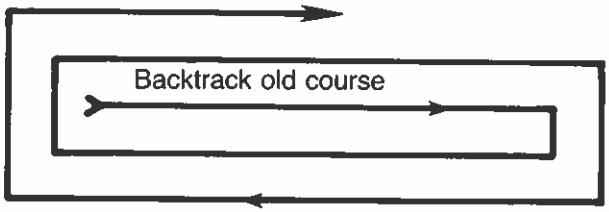
You can't really "navigate" a raft, but you can have some control over where you're going and how fast you'll get there.



Man overboard

Action taken aboard when a man is overboard is somewhat dependent on circumstances. If you actually see the man go in the water, immediately toss him a life ring, life jacket, or anything else that will float. You'll probably get the boat around to pick him up before he needs such things — but who knows? Bring the boat around and pick him up on your leeward side. If the water is cold and your freeboard high, he will probably need help — possibly someone (with a lifeline attached to his life jacket) to go into the water to help him. Vessels of high freeboard should have a plan for picking up someone who has fallen into the water — it is an all too common and frequent accident. All crew members should know the procedures.

SEARCHING: If a man fell over without being immediately noticed, call the Coast Guard as soon as you discover him missing, and retrace your course to the farthest distance back he could possibly be. Then come back again about ¼ mile off to the side — preferably on the side to which you would expect him to drift. The following is a useful pattern to use in searching:



TREATMENT: Once the man is aboard, check to see if he needs artificial respiration. This should be followed by treatment for shock, regardless of how "healthy" he seems. Immediately strip off all his clothes and wrap him in plenty of towels and blankets. Don't force liquor on a man — it doesn't really warm him, but it can be a good morale factor. However, excessive liquor when his body temperature has been reduced by immersion in cold water can be extremely hazardous.

Other survival techniques, procedures and equipment are covered by various U.S. Coast Guard publications. Rescue procedures including helicopter evacuation rules for vessel inspections, rules of the road, vessel light signals and shapes and other regulations can be obtained through the U.S. Coast Guard Safety Office nearest you. Also, the Coast Guard Auxiliary will examine safety items aboard your vessel and issue you a decal for the boat if it passes. Some commercial fishing industry associations also have established safety inspection procedures for member's vessels.

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